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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,045	11/18/2003	Daniel J. Weyers	GEM 0230PA	1044
27256	7590	01/25/2006	EXAMINER	
ARTZ & ARTZ, P.C. 28333 TELEGRAPH RD. SUITE 250 SOUTHFIELD, MI 48034			RAMIREZ, JOHN FERNANDO	
			ART UNIT	PAPER NUMBER
			3737	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/707,045	WEYERS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	John F. Ramirez	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

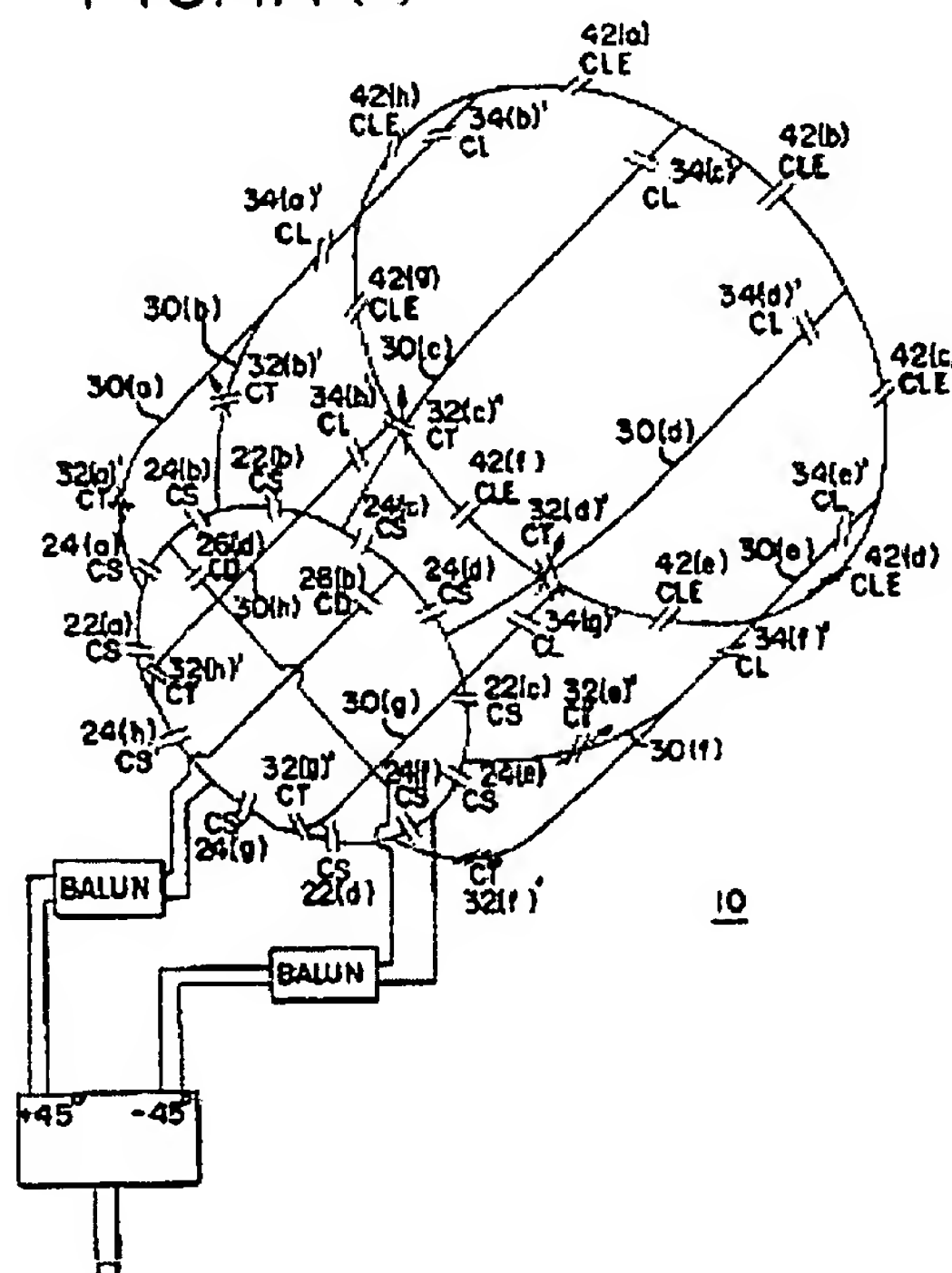
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

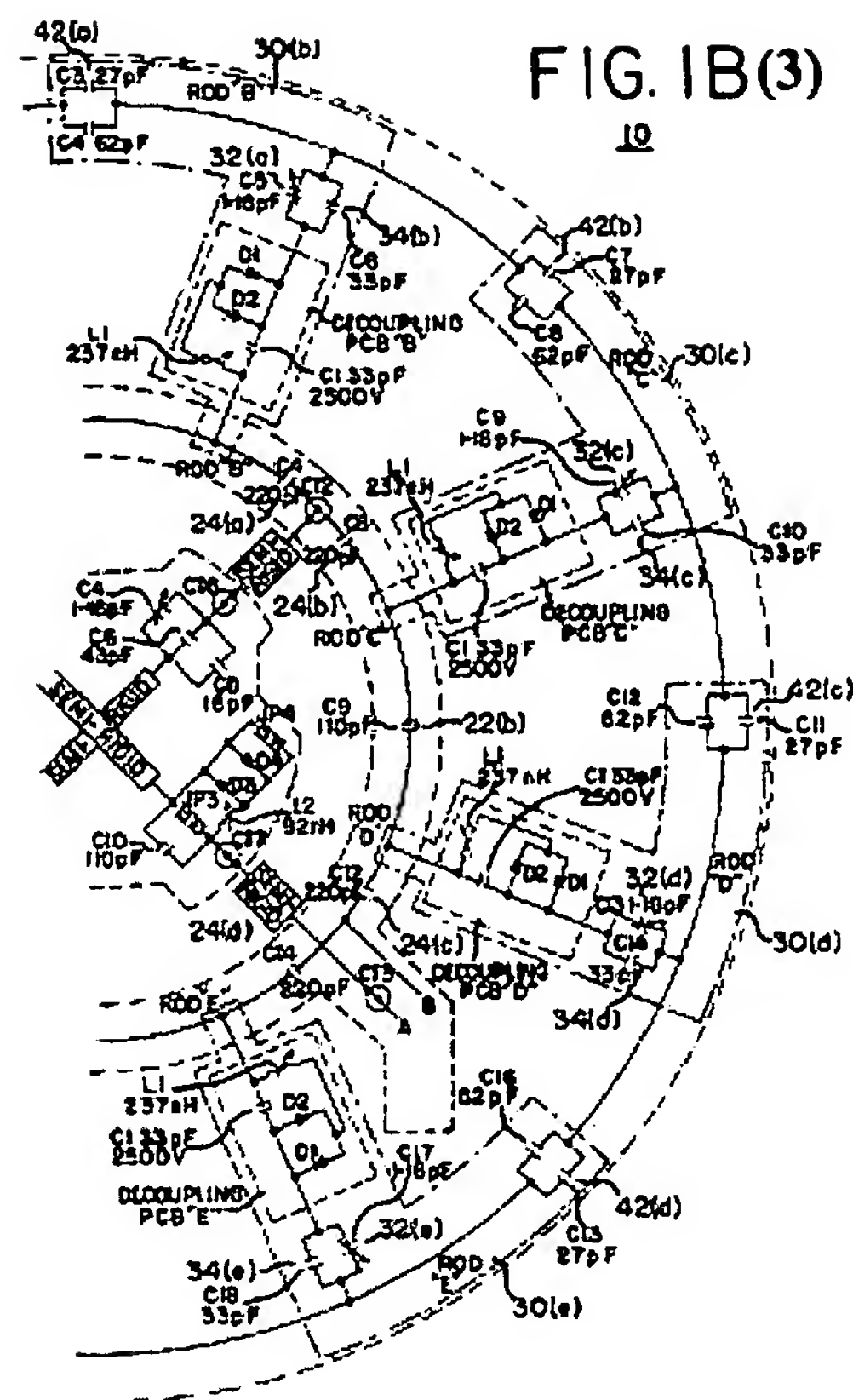
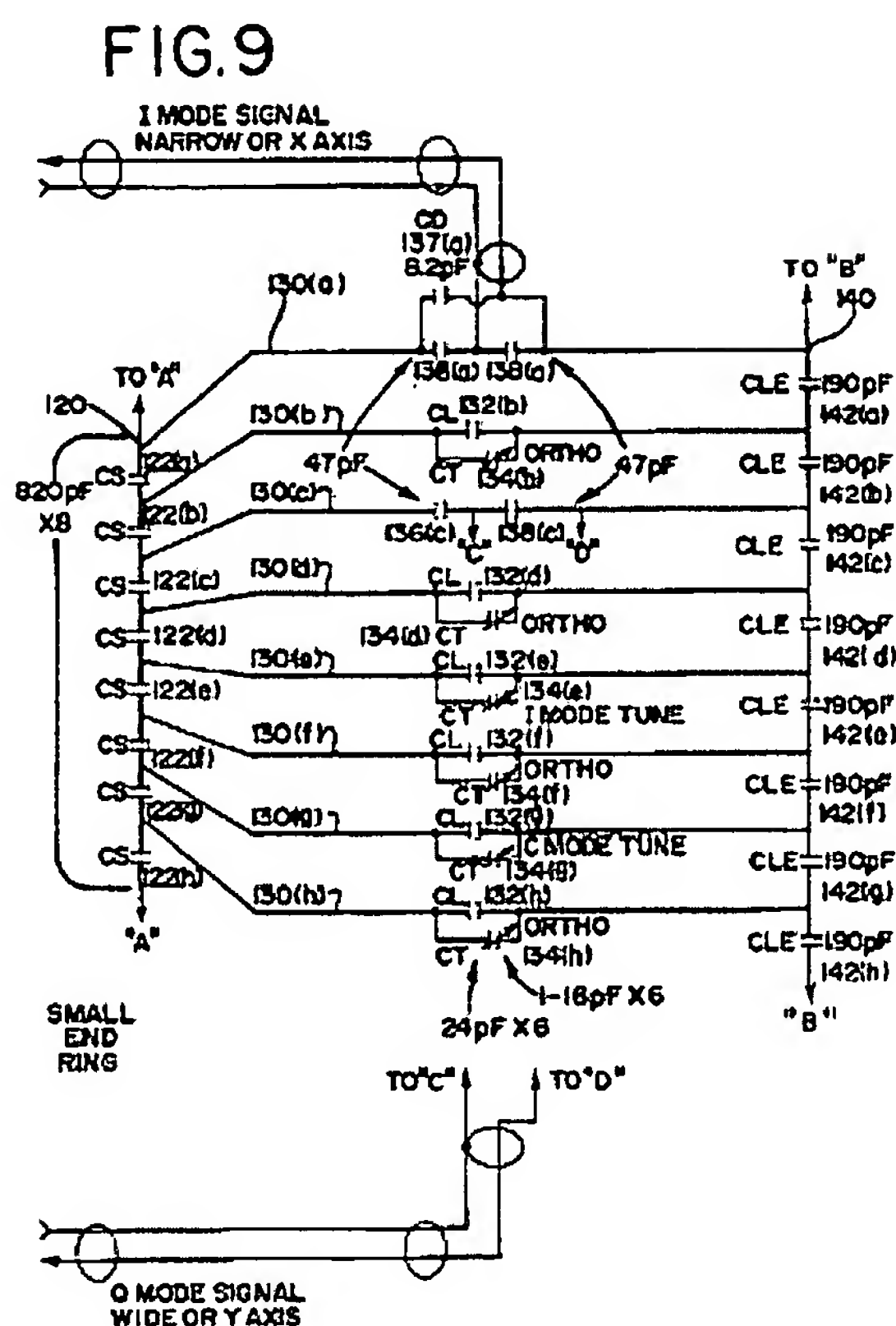
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-9, 12-16, 18, and 19-20, 24 and 25 are rejected under 35

U.S.C. 102(b) as being anticipated by Reisker et al. (US 6,344,745).

**FIG. 1A (1)**





With respect to claims 1-5, and 7-9, Reisker et al., shows in figures 1A, 1B, and 9, an imaging coil comprising: a plurality of end rings; at least one center ring extending parallel to and coupled between said plurality of end rings; and a plurality of legs coupled between said plurality of end rings and said at least one center ring; said plurality of end rings having a first radius greater than a second radius of said center ring (col. 9, lines 4-10), wherein at least one of said plurality of end rings is elevated, wherein said first radius is approximately 1.0cm greater in length than said second radius, wherein said first radius is approximately 31.5cm, wherein said second radius is approximately 30.5cm, further comprising a plurality of capacitor groupings coupled along said plurality of end rings, each capacitor grouping comprising a plurality of

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capacitors having a coverage area with a width approximately greater than 5.0cm, wherein said at least one center ring is coupled to a ground reference and has low impedance such that said at least one center ring is effectively shorted to said ground reference, wherein said plurality of end rings, at least one center ring, and said plurality of legs are configured to form a birdcage style imaging coil.

With respect to claims 12-16, 18, Reisker et al., shows in figures 1A, 1B, and 9, an imaging coil comprising: a plurality of end rings; at least one center ring extending parallel to and coupled between said plurality of end rings; a plurality of legs coupled between said plurality of end rings and said at least one center ring; and a plurality of capacitor groupings coupled along said plurality of end rings, each capacitor grouping comprising a plurality of capacitors having a coverage area with a width greater than 5.0cm, wherein said plurality of end rings, at least one center ring, said plurality of legs, and plurality of capacitor groupings are configured to form a birdcage style imaging coil, an imaging coil comprising: a plurality of end rings; at least one center ring extending parallel to and coupled between said plurality of end rings, said at least one center ring coupled to a ground reference and having low impedance such that said center ring is effectively shorted to said ground reference, and a plurality of legs coupled between said plurality of end rings and said at least one center ring, wherein said at least one center plurality of end rings, ring, and said plurality of legs are configured to form a birdcage style imaging coil, wherein said at least one center ring comprises a plurality of capacitors having low impedance, and wherein said plurality of end rings are driven via a balun-less drive cables,

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With respect to claims 19-20, 24 and 25, Reisker et al., shows in figures 1A, 1B, and 9, a magnetic resonance imaging system having a patient bore, said system comprising; a radio frequency shield; and an imaging coil comprising, a plurality of end rings; at least one center ring extending parallel to and coupled between said plurality of end rings; and a plurality of legs coupled between said plurality of end rings and said at least one center ring; said plurality of end rings having a first radius greater than a second radius of said center ring, further comprising a driver coupled to said plurality of end rings via balun-less drive cables, further comprising a plurality of capacitor groupings coupled along said plurality of end rings, each capacitor grouping comprising a plurality of capacitors having a coverage area with a width greater than 5.0cm., and wherein said at least one center ring is coupled to a ground reference and has low impedance such that said at least one center ring is effectively shorted to said ground reference.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 10, 11, 17, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisker et al. (US 6,344,745) in view of Burl et al. (US 6,396,271).

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Reisker et al. teaches all the limitations of the claimed subject matter except for mentioning specifically an imaging coil comprising: a plurality of legs comprising more than 16 legs, and wherein said plurality of capacitors have low impedance at frequency levels of approximately greater than or equal to 120MHz, wherein said plurality of end rings are closer to said radio frequency shield than said at least one center ring, and wherein said plurality of end rings are farther away from the patient bore than said at least one center ring.

However, an imaging coil comprising: a plurality of legs comprising more than 16 legs, and wherein said plurality of capacitors have low impedance at frequency levels of approximately greater than or equal to 120MHz, wherein said plurality of end rings are closer to said radio frequency shield than said at least one center ring, and wherein said plurality of end rings are farther away from the patient bore than said at least one center ring is considered conventional in the art as evidenced by the teachings of Burl et al.

Based on the above observations, for a person of ordinary skill in the art, modifying the coil system disclosed by Reisker et al., with the above discussed enhancements would have been considered obvious because such modifications would have improved capacitance, homogeneity and simultaneously, high signal to noise ratio performance of birdcage coils, resulting in better image quality.




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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
BRIAN L. CASLER  
SUPERVISORY PATENT EXAMINER  
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JFR  
01/10/06